

CLAIMS

What is claimed is:

1. A magnetic write head, comprising:
a first magnetic layer having a first width;
a second magnetic layer having a second width;
a non magnetic layer separating at least a portion of said first magnetic layer from said second magnetic layer;
a third magnetic layer contacting the second magnetic layer the third magnetic layer having a third width greater than the second width of the second magnetic layer.

2. A magnetic head as recited in claim 1, further comprising an electrically conductive coil, a portion of which passes between the first magnetic layer and the third magnetic layer, the electrically conductive coil having a substantially planar first surface that is coplanar with a plane defined by an interface between the second magnetic layer and the third magnetic layer.

3. A magnetic head as recited in claim 2 further comprising, non-magnetic, electrically insulative material separating said electrically conductive coil from said first, second, and third magnetic layers.

4. A magnetic head as recited in claim 1, wherein said first and second layers are magnetically connected with one another in a back gap region.

5. A magnetic head comprising a magnetic write structure having an ABS end thereof, the magnetic write structure comprising:
A first magnetic layer having a first pole at the ABS end thereof;
A second magnetic layer having a second pole at the ABS end thereof, the second pole being spaced apart from the first pole and having a second-pole width;
A third magnetic layer having a third pole at the ABS end thereof, the third pole contacting the second pole and having a third-pole width greater than the second-pole

width so that the second magnetic layer and the third magnetic layer taken together have a T-shape when viewed from the ABS end; and

An inductive coil disposed adjacent to and in registry with the third magnetic layer at a coil-registry location remote from the third pole, the third magnetic layer passing through the inductive coil, wherein the third magnetic layer is nonuniformly thick such that a thickness of the third pole is less than a thickness of the third magnetic layer at the coil-registry location.

6. The magnetic head of claim 5, wherein:

The inductive coil is substantially planar and lies in an inductive-coil plane:

The first magnetic layer is substantially planar and lies in a first-magnetic layer plane parallel to and below the inductive-coil plane,

The second magnetic layer is substantially planar and lies in a second magnetic layer plane parallel to and below the inductive coil plane, ;

The third magnetic layer is nonplanar, with the third pole and a back gap layer portion remote from the third pole both lying in a buried-portion plane substantially coincident with the inductive-coil, and

A coil-registry portion lying in a coil-registry portion plane parallel to and above the inductive-coil plane, and wherein the coil-registry location is within the coil registry portion of the third magnetic layer.

7. The magnetic head of claim 5, further including a gap insulator disposed between the first pole and the second pole.

8. The magnetic head of claim 5, further including electrical insulation lying between the inductive coil and the adjacent first magnetic layer and third magnetic layer.

9. A method of fabricating a magnetic head comprising a magnetic write structure comprising the steps of:

Providing a substrate;

Depositing on the substrate a first magnetic layer having a first pole;

Depositing a gap insulator layer on the first magnetic layer;

Depositing a second magnetic layer overlying the gap insulator layer, the second magnetic layer including;

A second magnetic layer portion having a second pole thereon, the second pole having a second-pole width, and

A second layer insulator portion;

Depositing an electrically insulated inductive coil overlying the second-layer insulator portion; and

Depositing over the electrically insulated inductive coil a third magnetic layer having a non-pole portion and a third pole contacting the second pole, the third pole having a third-pole width greater than the second-pole width, a thickness of the third pole being less than a thickness of the non-pole portion.

10. The method of claim 9, wherein the step of providing the substrate includes the step of providing a read head as the substrate.

11. The method of claim 9, wherein the step of depositing over the inductive coil a third magnetic layer includes the steps of depositing the third magnetic layer of substantially uniform thickness, and removing a portion of the thickness of the third pole.

12. The method of claim 9, wherein the step of removing includes the steps of:
Masking the non-pole portions of the third magnetic layer, and
Removing material from the third pole.

13. The method of claim 11, wherein the step of removing includes the step of ion milling material from the third pole.